Spontaneous Telepathic Experiences from *Phantasms of the Living* and Low Global Geomagnetic Activity

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ABSTRACT: A total of 109 cases of spontaneous ESP that contained the day, month, and year of occurrence were found in the Gurney, Myers, and Podmore (1886) data base for the years for which measures of geomagnetic activity (the average antipodal, or aa, index) were available (1868 to 1886). Thirty-one of the cases contained temporal discrepancies and were considered internal controls. The 78 cases that contained no temporal inaccuracies occurred on days when the geomagnetic activity was significantly lower than for the days either before or after the experiences. Elimination of those cases that were more likely to have contained quasi-psi (primarily simple auditory impressions) and analyses of only those cases that contained the greatest details markedly enhanced the relationship between ESP experiences and concurrent geomagnetic activity. There were no statistically significant differences between the daily aa values for the control cases. Similar results have been found for a collection of more contemporary ESP experiences. If both spontaneous and experimental ESP occurrences are highly correlated with low geomagnetic activity, then the day-to-day variations in this global phenomenon may help explain the persistent variability in the display and accuracy of these experiences.

Spontaneous experiences of ESP have been hypothesized to be associated with ELF (extremely low frequency) electromagnetic fields (Persinger, 1974a, 1975, 1979; Puthoff & Targ, 1976). These fields propagate for megameters without appreciable attenuation, easily permeate man-made structures, and penetrate sea water (Bannister, 1984). ELF fields display peak power spectra within a major frequency range for the electrical activity of the human brain (10±10 Hz). Many ELF fields are generated naturally and are propagated within the spherical wave guide between the earth and the ionosphere. Other ELF variations occur as low-amplitude periodic pulsations within the geomagnetic field (Campbell, 1967).

Although the actual mechanism by which ELF electromagnetic fields (or a specific type of them) and ESP experiences are associated is not clear, both phenomena share similar spatial and temporal features. For example, a nonrandom spatial relationship between the putative agent and percipient and the diurnal occurrence of ESP experiences (Persinger, 1974b) are compatible with the general features of some forms of ELF propagation. The negative

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correlation between the monthly U-index (a measure of geomagnetic activity) and the numbers of ESP cases per month suggested that they were more likely during quiet geomagnetic periods. Presumably, enhanced geomagnetic activity would disrupt ELF stimuli or alter their signal-to-noise ratios.

In a recent study (Persinger, 1985), more precise analyses were completed for *daily* changes in geomagnetic activity at the time of the spontaneous telepathic impressions from Stevenson's (1970) collection. An extraordinarily strong statistical relationship was found between the geomagnetic activity as measured by the average antipodal (aa) index on the days of the experiences and the aa indices for the days immediately before and after the experiences. The days on which the ESP cases occurred were significantly quieter than the days before or after the experiences. Moreover, all the days on which the ESP experience occurred had lower aa values than the average aa value for the months in which the cases occurred.

I decided to see whether or not the association between ESP experiences and geomagnetic activity was evident for a larger data base of these phenomena. The Gurney, Myers, and Podmore (1886) collection was considered optimal for a variety of reasons. First, this data base was the first major survey of primarily ESP experiences and was often used as a reference or model for subsequent studies. Second, the authors attempted several levels of corroboration, such as interviewing witnesses other than the experient and checking obituaries. Third, these cases occurred during a time when paranormal claims were not a routine part of the educated zeitgeist.

There were also several methodological advantages in working with this collection. In this monumental two-volume work, the authors apparently engaged in little editing of the experiences or the corroborations. Entire letters were usually reproduced. Second, most of the experiences occurred within the United Kingdom. This was considered very important because of the cultural similarities of the experients. More or less, the same phrases or labels would be used to describe specific types of psi experiences.

A data base of ESP experiences located within the U.K. was also advantageous for the geomagnetic component of the study. First, the aa values are specified in universal time; this meant that there would be relatively little transformation of the time of experience (when given) to the universal reference. Second, the aa indices are derived from the observations of two stations: one in London and the other in Australia. Although this study involved global geomagnetic activity rather than regional (U.K.) measures, the proximity of the observatory and the experients was considered

important. Interestingly, about 80% of the cases in the data base involved both the agent and percipient living within the United Kingdom or the most western countries of Europe. Another approximately 10–15% involved the agent or percipient living in Australia or New Zealand (the region of the second observatory).

General and systematic relationships between ESP experiences and geomagnetic activity have important theoretical implications (even without the *traditional* ELF hypotheses). All human beings are immersed within the geomagnetic field. This statement would be particularly correct for the experients in the Gurney, Myers, and Podmore (1886) collection. With the exception of local anomalies, the probability is very close to one that all of the structures in which the experients lived did not appreciably alter the geomagnetic variations. In the present, the existence of large steel structures and extensive electrical apparatus form a complex matrix both within and outside living areas. These environmental changes can distort the static vector of the geomagnetic field and alter, but not eliminate, the time-varying geomagnetic components.

A geomagnetic correlation with ESP experiences would have two major practical advantages over other environmental stimuli. First, there are many different measures of both global and regional geomagnetic activity. Some of them are particularly extensive. The aa index, for example, began in the year 1868 (although it was determined in this century by Mayaud and published in 1973). Second, people are usually "aware" of other environmental stimuli, such as components of the weather or social conditions. Such awareness may inadvertently alter the subjects' behavior due to expectancy or social conditioning. Although geomagnetic conditions or laboratory simulations of them can affect behavior (Persinger, 1974a), there is little evidence that the human being is aware, at least in the waking state, of their presence.

Method

Selection of Cases

Only the evidential cases from Chapters 5, 7, 8, and 9 from Volume 1, Chapters 14 through 18 in Volume 2, and Chapters 3 through 9 in the supplement were examined (Gurney, Myers, & Podmore, 1886). Because the first year of the aa index was 1868 and the publication date of *Phantasms of the Living* was 1886, these dates were the lower and upper boundaries for the selection of cases. A total of 109 cases that involved the specification of day, month, and year were found. Fifty-four of the cases occurred between the years 1868 and 1879; the other 55 cases occurred between the years 1880 and 1886. Most of the experiences were

reported to have occurred during intense dreams (57%) or as "apparitions" or strong autonomic responses during the waking state. All of the experiences contained information about friends or members of the family who were later reported to have been dying (84%) or in severe crisis or ill at the same time. More than 86% of the experiences that were not associated with dreams occurred between 7 p.m. and 7 a.m. local time (which was universal time [UT] for 80% of the cases). The characteristics of the cases were similar to another population of ESP experiences (Persinger, 1974b).

Procedure

Each case was evaluated according to several categories. The first involved potential errors. Cases that contained no discrepancies upon corroboration by the authors were discriminated from those cases in which potential temporal inaccuracies were found. These discrepancies were of two types. The first involved the day, month, or year of the experience as determined by obituaries or corroborative letters from other witnesses who were mentioned by the experient. The second potential discrepancy involved cases such as "I saw an apparition of my father on the day he died," yet the month, day, and year were not reported. Instead, the authors attributed or inferred a date for the experience. These "error" cases were used as controls. Essentially, they contained similar details as other cases except temporal discrepancies were very likely or obvious.

Another category was the mode of the experience: auditory versus other. This category was considered important to discriminate possible "crisis-evoked" experiences that may be similar to ESP (i.e., "pseudopsi") but not associated with it. Many of the auditory impressions in the Gurney, Myers, and Podmore (1886) volumes involved hearing one's name called. These experiences are also among the most common correlates of temporal lobe lability (Persinger, 1983, 1984), psychological crisis, and a variety of transient chemical or electrophysiological changes. They were considered to contain a greater proportion of "noise" within the data base than any of the other modes of experience reported.

A final criterion involved the evaluation of the relative amount of detail for each case. Cases that contained large amounts of experiential and temporal details or that were excerpts from diaries were differentiated from those that were more vague. This procedure was based on the assumption that many specific details would tend to remove those cases that would be more characteristic of partial complex *electrical* seizures. In the latter situation, the person may

feel he or she had a profound, meaningful experience, yet there is a paucity of details about it (Ervin, 1975).

Daily aa indices were obtained from Mayaud (1973). This index starts for the year 1868 and was derived from the records of two observatories: one in London and the other in Australia. The index contains half-day averages for the magnetic activity that was recorded at the two observatories. In this study, if the case did not specify the hour of occurrence or if the experience occurred after 8 a.m. (UT), the average of the two half-day values was taken for the day of occurrence. Daily averages were also taken for the 3 days before and for the 3 days after the day of the experience. If the experience occurred before 8 a.m., then the average was based on the first half-day value of the day on which the experience occurred and the second half-day value of the day before. Averages for the 3 days before and the 3 days after the experience were calculated in the same manner. Because the aa index is given in universal time, no transformation was required for 80% of the cases that occurred within the U.K. The other cases that occurred primarily within India, Australia, or New Zealand were transformed appropriately according to time zones. The same criteria were used for determining the inclusion of half-day combinations.

In addition, the mean of the monthly aa indices for the month in which the case occurred and the yearly value for the year in which the case occurred were also recorded. These data were included to determine whether or not the geomagnetic activity during the period around the experience was substantially lower than the average for the whole month. It was suspected that the geomagnetic activity on the day of the experience may not be lower than the days before or afterwards for some cases if the entire week displayed lower activity. Yet, in this event, such cases would still be considered to have occurred during a quiet geomagnetic period. The yearly average was included in order to determine if the month in which ESP cases occurred had lower activity than the yearly average.

The basic design involved a repeated measures analysis. Each case was its own control. For the daily analyses, the aa indices on the day of the experience were compared with the aa indices from each of the 3 days before and each of the 3 days after the experience. Because values of the aa indices can be extreme, both nonparametric (Friedman's test) and parametric (repeated measures analyses of variance) measures were used. The parametric analyses were completed on the aa indices only after they had undergone square root transformation. This procedure minimized the skewness to acceptable levels (<1). The same analyses were used for comparing the aa values on the days of the experiences with the

average aa values for the months and the years in which the experiences occurred. All analyses involved SPSS or BMDP2V (repeated measures analysis of variance) software on a DEC2020 System computer.

Results

Figure 1a shows the means and standard errors of the mean for the aa indices on the day of the experiences and the 3 days before and after the experiences for the cases ($N = 78$) for which there were no discrepancies between the experients' reports and the later corroborations by Gurney, Myers, and Podmore. Both the nonparametric measure ($\chi^2 = 15.98$, 6 *df*, $p = .01$) and repeated measures analysis of variance (F [6,462] = 4.04, $p < .001$) indicated that the aa indices were significantly lower on the day of the experiences relative to the days before and after the experiences. Post hoc correlated t tests indicated that the aa values on the day of the experiences were significantly lower than each of the other days. The largest difference ($t = 4.03$, 77 *df*, $p < .001$) occurred between the day of the experience and the day before. The days on which the experiences occurred also displayed significantly lower aa values than the monthly averages ($\chi^2 = 27.18$, 1 *df*, $p < .001$; $t = 5.00$, 77 *df*, $p < .001$). On the other hand, the monthly averages were not statistically different ($\chi^2 = 1.55$; $t = 2.20$; $p > .05$) than the yearly averages.

Figure 1b displays the results for the cases ($n = 31$) in which discrepancies were found between the experients' reports and the corroboration efforts by the authors or those cases for which the authors attributed a date. There was no statistically significant difference ($p > .05$) in aa indices between the days of the experiences and the days before or after the experiences. There was also no significant difference between the aa indices on the days of these occurrences and the monthly averages or between these averages and the yearly averages. As mentioned, these cases were considered "control" cases because they contained similar classes of experiences but only differed because of their possible temporal errors.

Removal of all cases that contained potential errors plus those that involved only auditory impressions left a total of 54 cases. As can be seen in Figure 2a, the relationship between the occurrence of ESP cases and geomagnetic activity remained and was enhanced. These experiences were more likely to occur when the aa index was significantly lower ($\chi^2 = 20.96$, 6 *df*, $p = .002$; F [6,318] = 4.05, $p < .001$) than days immediately before or after the experiences. The days on which the experiences occurred also displayed significantly lower aa values ($\chi^2 = 26.74$, 1 *df*, $p < .001$; $t = 4.90$, 53

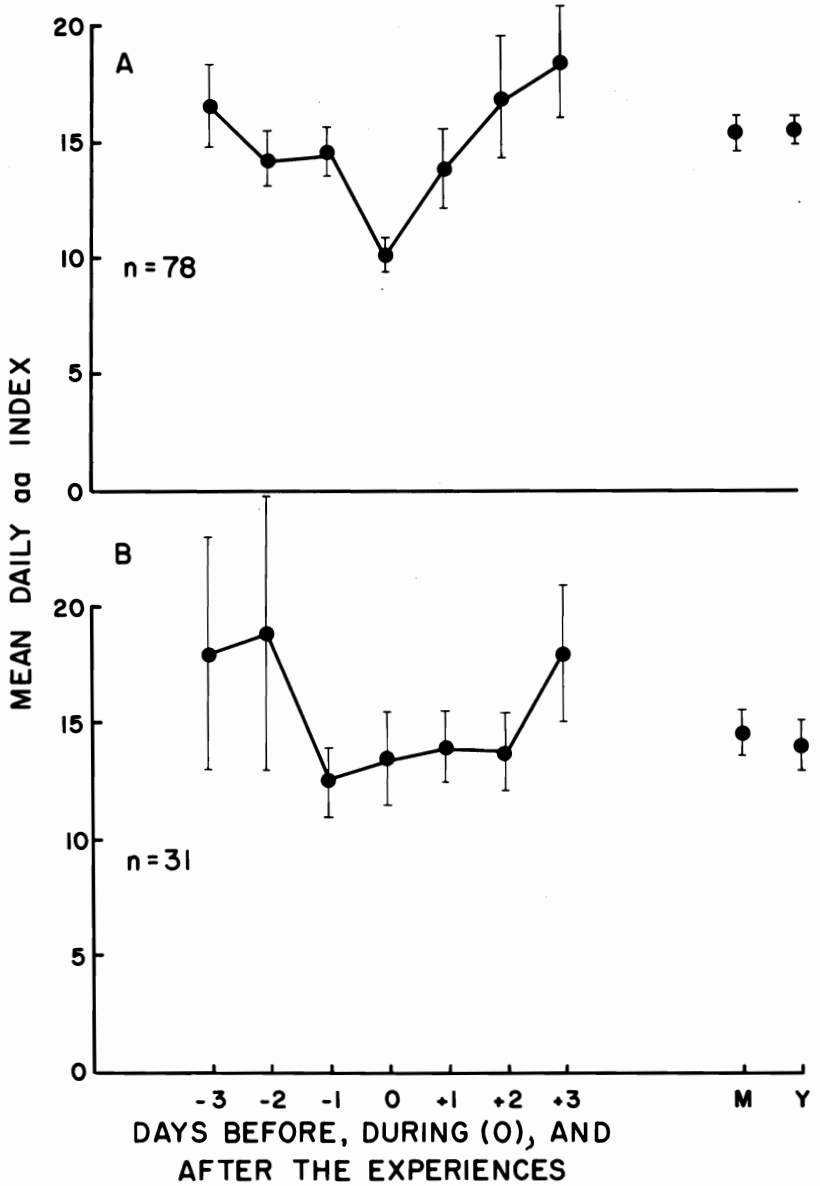

Fig. 1. Means and standard errors of the mean (vertical bars) for the aa indices (a measure of global geomagnetic activity) on the days of, before, and after the subjective ESP experiences reported by Gurney, Myers, and Podmore (1886).

Note: M refers to the mean aa index for the months in which the experiences occurred. Y refers to the mean of the aa indices for the years in which the experiences occurred. A. the V-shaped relationship between geomagnetic activity (aa indices) during and around the days of the experiences for those cases that contained no obvious errors upon corroboration. B. geomagnetic activity on the days of, before, or after experiences ("control" cases) in which temporal discrepancies or errors were found.

df, $p < .001$) than the monthly averages, which in turn did not differ significantly ($\chi^2 = 1.19$; $t = 0.40$, $p > .05$) from the yearly averages. Separate analyses on the auditory impression (with no temporal discrepancies) cases indicated no statistically significant differences ($p > .05$) between the aa indices on the days of the experiences and the values for the days before or after the experiences.

The final analyses were completed on those cases ($n = 31$) that contained the most detail (usually excerpts from diaries) and that contained no temporal errors. The repeated measures analyses were highly significant ($\chi^2 = 56.73$, 6 *df*, $p < .001$; F [6,200] = 20.00, $p < .001$). The V-shape relationship, as noted in Figure 2b, was even more enhanced. Again, the aa values for the days on which the experiences occurred were significantly lower ($\chi^2 = 31.0$, 1 *df*, $p < .001$; $t = 9.66$, 30 *df*, $p < .001$) than the aa values for the months in which these experiences occurred. However, the monthly averages were not significantly ($p > .05$) lower than the aa values for the years in which the cases occurred.

To determine the consistency of the relationship within months that contained very active versus little geomagnetic activity, separate analyses were completed on the 54 cases (Figure 2a). The 26 cases that occurred during the months that were below the mean aa value (14.1) for the 54 cases were analyzed separately from those that occurred during months that displayed averages above the mean.

The V-shaped relationship between the aa indices around the days of the experiences was statistically significant ($\chi^2 = 19.23$, 6 *df*, $p = .004$; F [6,162] = 3.33, $p < .001$) for the 28 cases that occurred during the more active months (aa $\geq$ 14.1). Again, the days on which the experiences occurred had significantly lower aa values ($\chi^2 = 20.57$, 1 *df*, $p < .001$; $t = 5.77$, 27 *df*, $p < .001$) than the averages for the months, which in turn were not statistically different from the yearly means.

However, the repeated measures analysis of variance was not significant ($\chi^2 = 5.82$, 6 *df*, F [6,150] < 1, $p > .05$) for the 26 cases that occurred during months with average aa values less than or equal to 14.0. The days on which the experiences occurred displayed marginally lower aa values ($\chi^2 = 7.54$, 1 *df*, $p < .01$; $t = 2.00$, 25 *df*, $p < .05$) than the monthly values. However, in this *one instance only*, the monthly averages were significantly lower ($\chi^2 = 16.96$, 1 *df*, $p < .001$; $t = 4.49$, 25 *df*, $p < .001$) than the averages for the years in which the cases occurred! These results indicated that the entire months in which these experiences occurred were characterized by very low geomagnetic activity. Graphic display of the aa values confirmed this conclusion.

Discussion

These results clearly indicate that spontaneous ESP experiences were more likely on days when geomagnetic activity was much lower than on the days before or after the experiences. This pattern is supported by two observations. The first is the significantly lower mean aa indices for the days of the experiences. The second is the lower variability of the aa indices on the days of the experiences compared to those days before or afterwards. Days around the days of the experiences should be associated with the entire range of aa values that could vary from less than 10 to over 100. The general depression of geomagnetic activity within ± 1 days of the experiences is also expected because moderate, statistically significant correlations between the geomagnetic activity of any series of days and the day before or the day after are normal. However, the autocorrelation usually drops appreciably between geomagnetic activity on a given day and the geomagnetic activity 2 or 3 days before or after.

The results are also similar to those found with the 25 cases (that contained sufficient temporal data) from the collection of Stevenson (1970). Figure 3 shows this relationship between the aa indices on the days of the experiences as well as for the 3 days before and after. Stevenson's cases occurred after the publication of Gurney, Myers, and Podmore (1886). The analyses of these results (Persinger, 1985) also indicated that the experiences occurred on days when the aa indices were significantly lower than the days before or after.

The present study also emphasizes two other important methodological features that may enhance the study of the relationship between psi experiences and environmental events. First, cases may exist within a data base that may serve as internal controls. In this study, cases in which temporal discrepancies were found or for which the authors attributed a date when the experient could only guess the date served as references. Such cases would have been (presumably) subject to the same sampling or data-gathering procedures and differed only in the discrepancy of dates.

Second, spontaneous ESP cases may be expected to occur in a pool with a variety of very similar experiences. If, as one hypothesis (Persinger, 1986) predicts, actual ESP experiences are strongly associated with specific activity in the temporal lobe of the human brain, then a variety of other non-ESP conditions could evoke very similar experiences. These experiences may contain many of the characteristics of ESP phenomena by virtue of the fact that they share similar brain mechanisms. Actual ESP cases would involve (1) information that originated at a distance due to the activity of

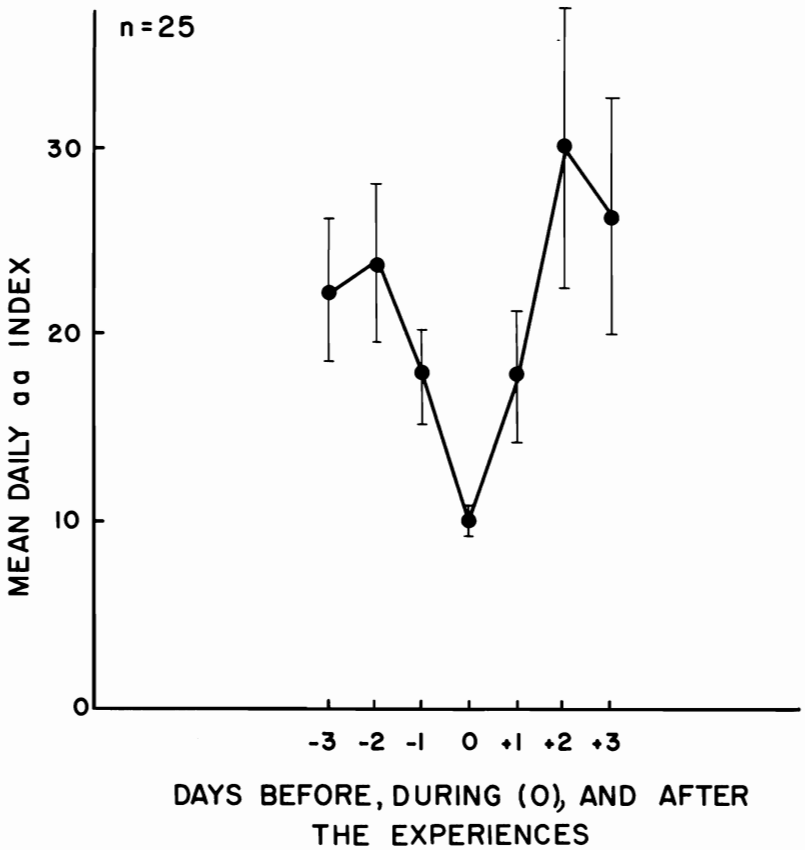

Fig. 3. Means and standard errors of the mean (vertical bars) for the aa indices (a measure of geomagnetic activity) on the days of, before, and after telepathic impression cases that were determined and corroborated by I. Stevenson in his 1970 sample (modified after Persinger, 1985).

Note: The figure only refers to those cases that contained information for the day, month, and year of the experience.

another person or (2) specific changes in the percipient that enhance the detection. Non-ESP cases would originate from nonspecific, endogenous sources. They would include the physiological and biochemical changes that are frequently correlated with mourning or personal crisis.

The major support for the relationship between ESP experiences and geomagnetic activity is really based upon the first analyses that involved 74 cases. Although the relationship between ESP cases and geomagnetic activity appeared to be enhanced with the cases that

excluded auditory impressions and particularly with the cases that involved substantial detail, their selection was based upon assumptions generated by the model (Persinger, 1983). It may be that the auditory impressions still reflect a type of ESP that is generated by different mechanisms. Because the determination of "greater detail" was based upon my general impression, it is also possible that my discrimination was based upon control factors other than details of the narrative.

There may have been actual ESP experiences within those cases that were categorized as erroneous. There may have been actual ESP experiences in the strictly auditory impressions. They were systematically excluded from the analyses on the assumption that they should contain proportionally more "false" cases (experiences that were similar to actual ESP). These cases would be expected to weaken or even mask the relationship between the ESP experiences and the geomagnetic condition. The increasing strength of the ESP and geomagnetic relationship when these cases were removed supports these assumptions.

These results are compatible with the ELF hypothesis for at least some ESP occurrences. Although the actual mechanism by which ELF fields would mediate the information to the experient is not clear, the propensity for these experiences to occur on days of relatively quiet geomagnetic activity suggests an ELF mechanism. Quiet geomagnetic days would be less disruptive to the natural resonances that are generated between the earth and the ionosphere or that propagate within the quiet geomagnetic field.

Most ELF hypotheses (Kogan, 1968; Persinger, 1975; Puthoff & Targ, 1976) have directly or implicitly embraced the Schumann resonances. These ELF fields are generated within the earth-ionospheric cavity. Their specific wavelengths are due to the absolute circumference of the earth and the spatial and electrical properties of the ionosphere. There are a multitude of different sources that can contribute to ELF signals in this mode. Man-made sources, such as the project for submarine communication systems, may also contribute to the plethora of signals. There may be a more relevant ELF source that has not been isolated.

My recent conceptual development of the ELF hypothesis supports the role of purely geomagnetic pulsations. Many of these variations show temporal and spatial characteristics that may be compatible with the occurrence of ESP (Campbell, 1967). Of course, the results could be considered *without* any reference to the ELF hypothesis at all. No theoretical commitment is really required. Essentially, these analyses indicate that spontaneous ESP experiences are very likely to occur on days when the geomagnetic activity is lower than on the days before or after. Whatever mech-

anism is involved with the association, the correlation between ESP and geomagnetic activity appears to be persistent and strong.

A coupling between geomagnetic activity and ESP experiences might also explain the fundamental problem of psi research: its apparent lack of systematic replicability. Most of us have experienced the impressive displays of both spontaneous and experimental ESP phenomena that can occur repeatedly during a day or within a few days. Then the phenomena just "disappear." If ESP phenomena are coupled with geomagnetic activity, then perhaps their elusive nature is tied to the day-to-day or even hour-to-hour variations of the geomagnetic environment within which we are all immersed.

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